



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,337	07/02/2002	Ilia Greenblat	56162.000318	8339
21967	7590	08/29/2005	EXAMINER	
HUNTON & WILLIAMS LLP INTELLECTUAL PROPERTY DEPARTMENT 1900 K STREET, N.W. SUITE 1200 WASHINGTON, DC 20006-1109			NGO, KIET TUAN	
			ART UNIT	PAPER NUMBER
			2195	
DATE MAILED: 08/29/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/064,337

Applicant(s)

GREENBLAT ET AL.

Examiner

Kiet T. Ngo

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/24/2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/02/02 04/04/03
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

RD

DETAILED ACTION

1. Claims 1 – 23 are pending in this application.

Claim Objections

2. Claim 3 is objected to because of the following informalities: The punctuation after the claim contains a comma and a period. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 1 – 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. The following terms lack antecedent basis:

- (i) "the register values" – claim 2 – 3;
- (ii) "the communications processor" – claim 6;
- (iii) "the content" – claims 8, 17, and 20.

B. The following claim language is indefinite:

(i) As to claim 1, lines 3 – 4, it is not clearly indicated whether "task identifier" is the same as "values" (i.e. since the sampling is for the task identifier only, what is the relationship between values and identifier?);

Lines 8 – 9, it is uncertain how the switching step is performed (i.e. by accessing the values stored in the 1st, 2nd, and 3rd register files or by switching access from 1st register file to 3rd register file?);

Art Unit: 2195

Lines 8 – 9, it is not clearly indicated whether 2nd register file has been accessed during switching step.

(ii) As to claim 2, line 2, the typo error for “switch is”. It should read, “switch to”. Appropriate correction is required.

(iii) As to claim 7, line 2, it is not clearly indicated which “register files” is referred to (i.e. 1st, 2nd, or 3rd register file, or all of them?).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 – 5 and 7 - 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nation et al. U.S. Patent (#6,233,599)

6. As to claims 1 and 12, Nation teaches the invention substantially as claimed including an method/system for efficient processing of tasks [col. 1, lines 42 – 44] in a communications system, comprising:

sampling a current task identifier and a next task identifier [col. 7, lines 11 – 21; col. 20, lines 11 – 15, lines 35 – 42];

Art Unit: 2195

providing a first register file for storing values for a current task [col. 20, lines 54 – 59];

providing a third register file for preloading values for the next task [col. 21, lines 35 - 47; col. 22, lines 5 – 10]; and

performing a task switch by making the next task identifier the current task identifier and sampling a further next task identifier [col. 2, lines 16 – 19; col. 22, lines 55 – 61].

7. Nation fails to teach a providing a second register file for storing values for the current task that are not in the first register file. However, Nation teaches multiple register files [R0 – R7; Fig. 2C] containing data, these register files are divided into subsets [B, C, D] representing registers used by tasks. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have recognized that each of these registers contained data that was different from the data in the other registers in order to more efficiently perform their functions.

8. As to claims 2 and 13, Nation teaches the step of completing the preload of the register values for the next task identifier which after the task switch is the current task identifier [col. 22; lines 5 – 10; col. 23, lines 1 – 6]].

9. As to claims 3 and 14, Nation fails to teach using the third register file as the second register file after the task switch. However, he teaches the reusing of

Art Unit: 2195

a register [R4 – R7, Fig. 2C] when they are used by multiple tasks [C, D, Fig. 2; col. 8, lines 6 – 29]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have realized that this reusing of registers is the same as using a third register file as a second register file.

10. As to claims 4 and 15, Nation teaches the first register file 36, Fig. 3B] comprises registers with a data field [38, Fig. 3B] and a thread identifier field [37, Fig. 3B].

11. As to claim 7 Nation teaches task switches are performed without an explicit save/restore of the register files [col. 11, lines 58 – 62; col. 14, lines 37 - 44].

12. As to claim 8 and 17, Nation teaches comparing the current task identifier to a task identifier in the first register file;

writing a value to the first register file when the current task identifier is the same as the task identifier in the first register file [col. 12, lines 54 – 61]; and

writing a value to the first register file when the current task identifier is not the same as the task identifier in the first register file after the content in the first register file is saved to a memory [col. 13; lines 31 - 44].

Art Unit: 2195

13. As to claims 9 and 18, Nation teaches wherein the content in the first register file is saved to a task identifier context table [Fig. 7; col. 16, lines 24 – 39].

14. As to claims 10 and 19, Nation teaches comparing the current task identifier to a task identifier in the first register file [col. 22, lines 13 – 18];
reading a value from the first register file when the current task identifier is the same as the task identifier in the first register file [col. 22, lines 18 – 22]; and
reading a value from the second register file when the current task identifier is not the same as the task identifier in the first register file [col. 22, lines 30].

15. As to claims 11 and 20, Nation teaches wherein the content of the first register file is not changed as a result of the read [col. 22, lines 17 - 20].

16. As to claim 21, Nation teaches the means for performing a task switch comprises a preload [30, Fig. 1A] and bump unit [50, Fig. 1A].

17. As to claim 5 and 16, Nation fails to teach a first register file has 32 registers, each register having a 32 bit data field and a 6 bit task identifier field. However, Nation does disclose a general purpose register with a data field and bit task identifier field. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented a register file with a

Art Unit: 2195

32 bit data field and a 6 bit task identifier field because doing so would fully utilized the bandwidth of Nation's system.

18. As to claim 22 and 23, Nation fails to teach wherein the processor is an ALU.

19. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have realized that any processor could perform the functions of an ALU. Therefore the processor in Nation system can comprise an ALU.

20. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nation et al. U.S. Patent (#6,233,599), as applied to claim 1 above, in view of Adams U.S. Patent (#5,978,882).

21. As to claim 6, Nation fails to teach where wherein the first register file is exposed to a programmer of the communications processor and the second register file and the third register file are hidden from the programmer.

22. However, Adams teaches visible registers exposed to programmers and hidden registers, which are only available to an operating system [col. 6, lines 1 – 9].

Art Unit: 2195

23. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of Nation and Adams as it would allow for the protection of registers so that a programmer would not overwrite hidden registers while performing a task switch. This would have improved the integrity of the computer system by protecting registers from programmer modification.

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Anderson et al. U.S. Patent (#5,613,114) and Zahir et al. U.S. Patent (#6,065,114) they taught context switching.

Fleck et al. U.S. Patent (#6,128,641) he taught switching between tasks.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiet T. Ngo whose telephone number is (571)272-6451. The examiner can normally be reached on Mon. - Fri. 830-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-An Ai can be reached on (571)272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2195

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KTN



MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2195